Surfing for Soy Compounds

ARS researchers have posted a database on the web to help scientists pinpoint isoflavones—estrogen-like compounds in soy foods. Some isoflavones have been reported to help lower cancer risks, benefit the cardiovascular system, or reduce bone loss after menopause. The database could help nutritionists and physicians recommend foods with the highest levels of specific isoflavones. It provides values for daidzein, genistein, glycitein, and other isoflavones in 128 soy foods and ingredients.

The isoflavone web site springs from a larger effort to compile information on health-enhancing phytonutrients. Last fall, ARS released a database on carotenoids, such as beta carotene and lycopene, in 215 foods. They also plan one for flavonoids, including catechins in tea, naringin and taxifolin in citrus, and quercitin in onions, apples, and red wine. *David Haytowitz, USDA-ARS Beltsville Human Nutrition Research Center, Beltsville, Maryland; phone (301) 734-5635, e-mail dhaytowitz@rbhnrc.usda.gov.*

Visit the isoflavone database at http://www.nal.usda.gov/fnic/foodcomp/Data/isoflav/isoflav.html.

Oral Vaccine for Shipping Fever

A new oral vaccine for shipping fever in cattle may be on the market in about 3 years. Also known as bovine respiratory disease, shipping fever can kill the animals. It costs U.S. producers in excess of $1 billion annually in animal deaths, reduced weight gain, lower feed efficiency, antibiotic needs, trimming costs at the packer, and poor-quality meat and hide products.

In an ARS field trial, the oral vaccine was fed to calves considered to have either high or low risk for the disease. Vaccinated and unvaccinated high-risk calves were shipped from Arkansas to a New Mexico State University feedlot in Clayton. Low-risk animals were shipped to the same feedlot but from a much shorter distance. Only 4 percent of vaccinated high-risk calves died, compared to 16 percent of the unvaccinated ones. Low-risk calves fed the oral vaccine had a 25 percent higher average weight gain during the first 28 days on feed, compared to unvaccinated animals. The oral dose also protected the animals within 4 days, instead of the 10 to 14 common with injectable vaccines. The oral vaccine avoids another drawback of injectable vaccines, which often produce lesions. The Biotechnology Research and Development Consortium in Peoria, Illinois, funded part of the research and has applied for a patent. *Robert E. Briggs and Fred M. Tatum, USDA-ARS National Animal Disease Center, Ames, Iowa; phone (515) 663-7639, e-mail bbriggs@nadc.ars.usda.gov ftatum@nadc.ars.usda.gov.*

New Grape Trio

Consumers may be smacking their lips on three new seedless grapes within a few years. Melissa, Summer Royal, and Summer Muscat are the latest sweet offerings of the ARS grape breeding program in Fresno, California. Cuttings were made available to breeders and growers for the first time this spring. More cuttings may be available this winter. Growers stand to benefit from unique traits of each new variety.

Melissa, a white seedless grape, yields large, sweet fruits that ripen about the same time as Thompson Seedless—the most popular seedless grape. But Melissa vines require no sprays of the natural growth regulator gibberellic acid to produce big berries. Summer Royal, a black seedless, is sweet, large, firm, and ideal for snacks and salads. It fills a production gap at the end of August, when few American-grown black seedless grapes are on the market.

Last of the trio, Summer Muscat is a seedless raisin grape. Its sweet, strong muscat flavor is somewhat like the traditional Muscat of Alexandria grapes favored by some makers of candy-coated raisins. But Muscat of Alexandria seeds have to be removed mechanically, making the raisins sticky and hard to process. Summer Muscat is the second dry-on-the-vine or "DOV" grape from the Fresno researchers. Unlike conventional raisin grapes, DOV grapes can dry on the vine once the cane or branch is severed. They can then be picked by machine instead of by hand, saving on labor costs.

The Fresno breeding program, active since 1923, is best known for Flame Seedless, America's most popular red seedless grape. *David W. Ramming, USDA-ARS Horticultural Crops Research Laboratory, Fresno, California; phone (559) 453-3061, e-mail dramm@qnis.net.*

Electricity "Waste" Powers Crops

Since enactment of the Clean Air Act as amended in 1990, scrubbers added to smokestacks of electric power plants have been generating more and more gypsum as a waste product. But instead of going to a landfill, that gypsum can help farmers raise their corn and soybean yields while protecting soil from erosion. Though still in the research stage, the tactic is being tried on hundreds of thousands of acres in the Midwest.

ARS researchers in Indiana have shown that the gypsum helps soil take in more water by preventing soil from crusting, so more rainwater enters the soil, instead of running off. In the past, gypsum from quarries has been used to loosen soil, treat soils high in sodium or toxic aluminum, and fertilize soils with calcium and sulfur deficiencies. At least one Illinois farmer operates a business applying the power-plant gypsum on other farmers' fields. Trucks that used to return empty from the grain elevator now return full—of gypsum. *Darrell Norton, USDA-ARS National Soil Erosion Research Laboratory, West Lafayette, Indiana; phone (765) 494-8673, e-mail nortond@ecn.purdue.edu.*